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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,165	11/03/2008	Chul-Sik Yoon	1403-08	2579
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EXAMINER				
GIDADO, RASHEED				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,165

Applicant(s)

YOON ET AL.

Examiner

RASHEED GIDADO

Art Unit

2464

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 4, 14 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claims 1-19 are pending in this application.

Response to Amendment

1. Claims 1, 4-6, 9-10, 13-16 and 18-19 have been amended.
2. Claim objections, on claims 4, 9, 10, 13, 14, 16 and 18 are withdrawn since they are being amended accordingly.
3. Claim rejection under 35 U.S.C. 112, on claims 15 and 19 are withdrawn since they are being amended accordingly.

Response to Arguments

4. Applicant's arguments filed 01/26/2010 have been fully considered but they are not persuasive.

Regarding claims 1, 9, 13, 16 and 18, the applicant argued, on pages 10-13 of the applicant response, that Kim and Das fails to teach "receiving uplink radio resource allocation information to which a channel for reporting the channel quality information (CQI) is allocated from base station".

In response to applicant's argument, the examiner respectfully disagrees with the argument above. Kim discloses Base Station receiving channel quality information measurement from the Mobile Station through a Reverse Channel Quality Indicator Channel (R-CQICH) (see Kim ¶¶ 0007, ¶¶ 0010, ¶¶ 0051, ¶¶ 0056, ¶¶ 0066 and ¶¶ 0106). Since it is common knowledge in the art that Base Station allocates resources to Mobile

Station in a communication network and Kim teaches Mobile Station transmits CQI to the Base Station through specifically allocated Reverse Channel Quality Indicator Channel (R-CQICH of Kim is the allocated resources for reporting CQI as claimed in the invention) for the purpose of reporting CQI, it is **obvious** that the Reverse Channel Quality Indicator Channel (R-CQICH) of Kim is pre-allocated for the purpose of reporting channel quality information to the Base Station.

Das also discloses a dedicated channel for reporting channel quality information to the Base Station (see Das ¶¶ 0004, ¶ 0005, ¶ 0020, ¶ 0020, ¶ 0036, ¶ 0047, ¶ 0048, ¶ 0055 and claim 5).

Therefore, it is obvious that combination of Kim and Das discloses resource allocation information to which a dedicated feedback channel for reporting the CQI is allocated.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
8. Claims 1, 6, 8-9, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pub. 2003/0054847 to Kim et al. (hereafter referenced as Kim) in view of US Pub. 2003/0148770 to Das et al. (hereafter referenced as Das).

Regarding claim 1, Kim discloses a method for reporting channel quality information (CQI) by a subscriber station in a mobile communication system (see abstract: method for reporting channel quality information from a mobile station to a base station), comprising:

Kim discloses *receiving uplink radio resource allocation information to which a channel for reporting the CQI is allocated from a base station* (§§ 0007, §§ 0010, §§ 0051, §§ 0056, §§ 0066 and § 0106: Base Station receiving channel quality information measurement from the Mobile Station through a Reverse Channel Quality Indicator

Channel (R-CQICH)). Since it is common knowledge in the art that Base Station allocates resources to Mobile Station in a communication network and Kim teaches Mobile Station transmits CQI to the Base Station through specifically allocated Reverse Channel Quality Indicator Channel (R-CQICH of Kim is the allocated resources for reporting CQI as claimed in the invention) for the purpose of reporting CQI, it is **obvious** that the Reverse Channel Quality Indicator Channel (R-CQICH) of Kim is pre-allocated for the purpose of reporting channel quality information to the Base Station;

Kim further discloses *receiving a CQI report message from the base station* (Fig 3; ¶ 0045, ¶ 0056);

measuring a radio channel quality for communication with the base station, and generating channel quality information (Fig 11 Step 400; ¶ 0007, ¶ 0018, ¶ 0042, ¶ 0044-0045, ¶ 0074, and ¶ 0088-0090: measuring channel quality of the communication channel between base station and mobile station);

generating a CQI response message including the channel quality information (Fig 11 Steps 430/470-490; ¶ 0045, ¶ 0047, ¶ 0054); and

transmitting the CQI response message to the base station through a dedicated feedback channel in the uplink (Fig 11 Step 440, Fig 12 Step 500; ¶ 0010, ¶ 0020, ¶ 0044, ¶ 0056, and ¶ 0092: transmitting CQI response signal to the base station).

Kim does not explicitly teach the R-CQICH is “a dedicated feedback channel for reporting the channel quality information allocated from the base station. However, Das discloses *receiving uplink radio resource allocation information to which a dedicated feedback channel for reporting the channel quality information (CQI) is allocated from a*

base station (see claim 4; Fig 1 Scheduler 118, Fig 2 Step 204, Fig 6 Feedback Channel; ¶ 0004-0005, ¶ 0020, ¶ 0036, ¶ 0040, ¶ 0047, ¶ 0048, ¶ 0055: base station allocating dedicated feedback channel to mobile station for transmitting channel quality information). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of dedicating an uplink feedback channel as taught by Das in the system of Kim as a design choice to reduce interference between the CQI report and communication data. This will improve the communication system throughput.

Regarding claim 6, Das further discloses the method wherein the CQI response message further includes a cyclic redundancy check (CRC) in addition to the channel quality information (¶ 0078-0083).

Regarding claim 8, Das further discloses the method wherein the CQI report message includes format information for reporting the channel quality information (Fig 3, Tables 1 and 2; ¶ 0004, ¶ 0035, ¶ 0040, ¶ 0046, ¶ 0047 and ¶ 0049).

Regarding claim 9, it is rejected for the same reasons as set forth in claim 1. Das further discloses transmitting and receiving CQI messages between Base Station and Mobile Station (Figures 1-7) and Kim also discloses transmitting and receiving CQI messages between Base Station and Mobile Station (Fig6, Fig 11 and Figures 12-17).

Regarding claim 12, Kim and Das disclose the method of claim 9. Kim further discloses the method further comprising: allocating downlink radio resources for the subscriber stations according to CQI response messages provided by the subscriber stations through the dedicated feedback channel (Fig 2; ¶ 0010, ¶ 0056, ¶ 0083: base station allocating resources according to CQI feedback transmitted by the mobile station).

Regarding claim 18, it is rejected for the same reasons as set forth in claim 1.

9. Claims 2, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das in view of US Pub. 2003/0157900 to Gaal et al. (hereafter referenced as Gaal).

Regarding co claim 2, combination of Kim and Das discloses the method of claim 1, but does not explicitly teach "wherein the CQI report message is broadcast". However, Gaal discloses plurality of mobile stations (Fig 1 MS 12A-12D) receiving CQI report message from a base station (¶ 0027, ¶ 0036: base station broadcasting forward signal consisting of resource allocation to plurality of mobile stations). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of broadcasting CQI report message as taught by Gaal in the system of Kim and Das for effective resource allocation and scheduling for multiple mobile stations in the communication system.

Regarding claim 13, Kim discloses a method for requesting and reporting radio channel quality information (CQI) in a mobile communication system to which a base station and subscriber stations are coupled through a mobile communication network (see abstract: method reporting channel quality information from a mobile station to a base station), comprising:

Kim discloses *allowing a base station to allocate a feedback channel for channel quality report, and transmitting the allocation information to the subscriber station* ((¶ 0007, ¶ 0010, ¶ 0051, ¶ 0056, ¶ 0066 and ¶ 0106: Base Station receiving channel quality information measurement from the Mobile Station through a Reverse Channel Quality Indicator Channel (R-CQICH)). Since it is common knowledge in the art that Base Station allocates resources to Mobile Station in a communication network and Kim teaches Mobile Station transmits CQI to the Base Station through specifically allocated Reverse Channel Quality Indicator Channel (R-CQICH of Kim is the allocated resources for reporting CQI as claimed in the invention) for the purpose of reporting CQI, it is **obvious** that the Reverse Channel Quality Indicator Channel (R-CQICH) of Kim is pre-allocated for the purpose of reporting channel quality information to the Base Station)

Kim further discloses generating a CQI report message, sending the CQI report message (Fig 3; ¶ 0045, ¶ 0056), and requesting a CQI report from at least one subscriber station (Fig 11 Step 400; ¶ 0007, ¶ 0018, ¶ 0042, ¶ 0044-0045, ¶ 0074, and ¶ 0088-0090: measuring channel quality of the communication channel between base station and mobile station);

allowing the subscriber stations to receive the CQI report message, measure radio channel quality for communication link to the base station, and generate channel quality information (Fig 11 Step 400; ¶ 0007, ¶ 0018, ¶ 0042, ¶ 0044-0045, ¶ 0074, ¶ 0088-0090: measuring channel quality of the communication channel between base station and mobile station); and

allowing the subscriber station to generate a CQI response message including channel quality information (Fig 11 Steps 430/470-490; ¶ 0045, ¶ 0047, ¶ 0054) and transmit the CQI response message to the base station through a dedicated feedback channel for channel quality report (Fig 11 Step 440, Fig 12 Step 500; ¶ 0010, ¶ 0020, ¶ 0044, ¶ 0056, ¶ 0092: transmitting CQI response signal to the base station).

Kim does not explicitly teach *a dedicated feedback channel for channel quality report*. However, Das discloses *allocating a dedicated feedback channel to the subscriber station for channel quality report to the base station* (see claim 4; Fig 1 Scheduler 118, Fig 2 Step 204, Fig 6 Feedback Channel; ¶ 0004-0005, ¶ 0020, ¶ 0036, ¶ 0040, ¶ 0047, ¶ 0048, ¶ 0055: base station allocating dedicated feedback channel to mobile station for transmitting channel quality information). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of dedicating an uplink feedback channel as taught by Das in the system of Kim as a design choice to reduce interference between the CQI report and communication data. This will improve the communication system throughput

Combination of Kim and Das does not explicitly teach *"broadcasting the CQI report message to the subscriber station"*. However, Gaal discloses *plurality of mobile*

stations (Fig 1 MS 12A-12D) receiving CQI report message from a base station (¶ 0027, ¶ 0036: base station broadcasting forward signal consisting of resource allocation to plurality of mobile stations). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of broadcasting CQI report message as taught by Gaal in the system of Kim and Das for effective resource allocation and scheduling for multiple mobile stations in the communication system.

Regarding claim 15, combination of Kim, Das and Gaal disclose the method of claim 13, wherein the requesting and reporting method is applied to a wireless portable Internet system (see Gaal, Fig 1; ¶ 0023: wireless Internet protocol network consisting of mobile stations and base stations).

10. Claims 3, 5 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim, Das and Gaal as applied to claim 2, in view of US Pub. 2004/0203717 to Wingrowicz et al. (hereafter referenced as Wingrowicz).

Regarding claim 3, combination of Kim, Das and Gaal discloses the method of claim 2, but does not explicitly teach "wherein the CQI report message includes identifiers of at least one subscriber station arranged in a predetermined order". However, Wingrowicz discloses the CQI report message includes identifiers of at least one subscriber station (Fig 1, Fig 2; ¶ 0024, ¶ 0028: adding mobile station identification (MSID) to the CQI report containing measurement and radio quality parameter received

from the base station) arranged in a predetermined order (arranging in order is inherently disclosed since mobile stations are assigned with MSID, this will explicitly show arrangement of the mobile station in order). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of including identifiers of subscriber stations as taught by Wingrowicz in the system of Kim, Das and Gaal in order to effective identification of channel condition of each mobile station in the communication system (§§ 0011-0013, 0024).

Regarding claim 5, Wingrowicz further discloses the method wherein the identifier of the subscriber station is a connection identifier (CID) (§§ 0024, § 0028: identifier of the mobile station is MS identification or call identification which can be interpreted as connection identification).

Regarding claim 10, it is rejected for the same reasons as set forth in claims 2 and 3.

Regarding claim 11, it is rejected for the same reasons as set forth in claim 3.

11. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das in view of US Pub. 2003/0185242 to Lee et al. (hereafter referenced as Lee).

Regarding claim 7, Kim and Das disclose the method of claim 1, wherein the CQI response message is encoded and decoded (see Lee Fig 1 Feedback encoder 129, Feedback decoder 119) but does not explicitly teach CQI response message includes a channel quality information codeword. However, Lee teaches CQI response message includes a channel quality information codeword (§ 0026-0029). Therefore, it would have been obvious to one of ordinary skill in the art to combine the inclusion of codeword to CQI response message as taught by Lee in the system of Kim and Das in order to effectively decode the CQI response message by the base station (see lee abstract, § 0026-0029).

12. Claim 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das and in view of US Pub. 2005/0111462 to Walton et al. (hereafter referenced as Walton).

Regarding claim 16, combination of Kim and Das discloses a base station for requesting channel information in a mobile communication system (previously discussed, see claim 13), comprising:

a base station resource controller for generating uplink radio resource allocation information in which a dedicated feedback channel for Channel Quality Information (CQI) report is allocated to an uplink radio resource, and including a channel information requester for generating a CQI report message (previously discussed, see claims 1 and 13);

a digital signal transmitter for performing adaptive modulation and coding on the uplink radio resource allocation information and the CQI report message to generate digital signals (see Das, Fig 1 Transmitter 114, Channel Encoder 111); and

an analog signal transmitter for converting the digital signals into analog signals and transmitting the analog signals to the subscriber stations (transmitter for converting digital signals to analog signal is well known in the art; see **Walton**, ¶ 0027, ¶ 0031: component that might be included in the transmitter include digital-to-analog (D/A) converters). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include D/A converters as taught by Walton in the system of Kim and Das as a design choice in transmitting analog signals in the communication system.

wherein the base station resource controller transmits the uplink radio resource allocation information to the subscriber station and transmits the CQI report message thereto (previously discussed in claims 1 and 13, also see **Das**, ¶ 0026).

13. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Das as applied to claim 16 in view of Wingrowicz.

Regarding claim 17, The base station of claim 16, wherein the channel information requester comprises: a dedicated channel allocator for generating an uplink radio resource allocation information in which a dedicated feedback channel for CQI report is allocated to an uplink radio resource (previously discussed, see claims 1 and

16); a subscriber station designator for designating at least one subscriber station for requesting channel information (previously discussed by **Wingrowicz**, see claim 3: assigning identifier to subscriber stations); and a request message generator for generating a CQI report message including identifiers of the designated subscriber stations (previously discussed, see claims 1, 13 and 16).

Allowable Subject Matter

14. Claims 4, 14 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for

proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pub 2004/0114574 to Zeira et al. discloses allocating uplink/downlink dedicated channel for transferring measurements and maintaining signal quality.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RASHEED GIDADO whose telephone number is (571)270-7645. The examiner can normally be reached on Monday to Thursday 9:00-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2464

RASHEED GIDADO
Examiner
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